

CLAIMS

Sub 2
1. In a global positioning system (GPS) in which a plurality earth orbiting satellites transmit position information to mobile radio stations on earth, the improvement comprising:

5 an earth based source of satellite position data for assisting said mobile radio station to access position information from said satellites, and an earth based communication channel coupled to said source,

10 means coupled to said mobile radio station for connecting to said earth based communication channel for extricating said satellite position data via said non-satellite earth based communication channel, and

15 means for processing said satellite position data to enable said mobile radio station to rapidly locate and access position information from said earth orbiting satellite.

2. A method of rapidly supplying a GPS receiver with the Satellite Data Messages for all in-view satellites, comprising:

20 providing a separate source of broadcast digital channels and one or more dial-up service channels (selected from a data link supported by terrestrial cellular telephone and other radio packet data services), and accessing said source to supply said Satellite Data Messages for all in-view satellites and said GPS receiver.

25 3. A method for using the ephemeris data and time models in the Satellite Data Messages to optimally and rapidly acquire all in-view satellites, comprising performing a parallel search over

the entire frequency uncertainty band to acquire a GPS satellite overhead, calibrating the receiver local oscillator to reduce the frequency band for the acquisition of subsequent in-view satellites, and performing a further parallel search for all in-view satellites using on a single frequency search cell per satellite.

4. A method for calculating a position using only pseudorange measurements on the in-view satellites without having to read the GPS data broadcast, achieve bit sync, or establish frame sync, comprising providing an independent source of a priori knowledge of receiver position to resolve the ambiguity in the time-position of the GPS solution.

5. A method of rapid reacquisition of the in-view GPS satellites in obstructed environments where much of the time, the line-of-sight to most satellites is blocked and occasionally is clear, as on roads in urban areas or in heavily forested regions, via a parallel search for all in-view satellites, including reducing the frequency uncertainty band for signal reacquisition to one cell by calibrating the GPS receiver local oscillator on the basis of a pseudorange measurement on an overhead satellite.

6. A method for providing a basestation for a cordless cellular telephone handset that allows remote use of said handset via the basestation relay, used in this manner, said handset is supported by the GPS receiver and modem located in the vehicle unit, and so access to the handset provides access to the full range of capabilities, including, generation and relay of

~~position, supported by the vehicular unit.~~

Sub A4
7. In a GPS system wherein a plurality of satellites transmits time and location data over radio frequency signals which enable a mobile GPS receiver on the ground to determine its position, the improvement including: a source of satellite data message block containing the ephemeris and time modes of the GPS satellites, which is independent of said satellite, an independent wireless data channel for accessing said satellite data message block and controller means connecting said satellite message data block to said mobile GPS receiver.

6/8. The invention defined in claim 7 wherein said wireless data channel is a cellular telephone.

Sub A5
9. The invention defined in claim 8 wherein said cellular telephone base is a cordless handset and further including a basestation relay for said cordless handset for allowing remote use of said handset via said basestation relay.

10. The invention defined in claim 8 including pushbutton controlled RF control signal source means for coupling control signals to said controller means to cause said mobile GPS receiver to determine its position and transmit, via said cellular telephone, the determined position to a predetermined location.

add A3